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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,347	01/31/2001	Hideki Kuwajima	YAO-4337US	2586

7590 11/18/2004

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EXAMINER

LETSCHER, GEORGE J

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,347

Applicant(s)

KUWAJIMA ET AL.

[Handwritten signature]

Examiner

George J. Letscher

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/13/04.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 15-43 is/are pending in the application.
- 4a) Of the above claim(s) 15-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 29-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/774,347.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/1/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/13/04 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the

inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 29-35 and 37-42 are rejected under 35 U.S.C. 102(b) as being anticipated by PCT/US97/07233 in view of Stefansky (US 6,222,706).

The aforementioned claims recite the following features, inter alia, disclosed in PCT/US97/07233: a head support mechanism including: a slider (24) having a magnetic head (25); a slider holding plate (arm which holds dimple (48)) for holding the slider; a pair of substrates (perpendicular portions 68A, 68B) each having an attached piezoelectric element (66A, 66B); elastic hinges (arms extending from the base of 22) bending depending on movement of the slider and dimple for connecting the slider plate and substrates; a dimple (48) for supporting the slider plate such that the slider plate is rotatable in the pitch, yaw and roll directions; wherein the slider is rotated around the dimple in the yaw direction by contraction and/or expansion of at least one of the piezoelectric elements. The substrates are stacked on each respective piezoelectric element, with at least one substrate bent by a bimorph effect and expansion at one of the piezoelectric elements. The dimple (48) is at an end of the of a load beam. The load beam has a pair of regulation portions (18) regulating rotation of the slider plate. The substrate roots are integral.

Regarding claim 1, PCT/US97/07233 does not teach the dimple supporting the slider holding plate such that the slider holding plate is rotated on the dimple in a pitch, roll and yaw direction. Regarding claims 35 and 42, PCT/US97/07233 does not expressly show the substrates and piezoelectric elements are coated with resin.

Stefansky '706 discloses a magnetic head arm assembly having a load beam (18), slider (24) with a head (40) attached thereto, a slider holding plate (22) with a dimple (60) supporting the slider holding plate such that the slider holding plate (at its tongue portion (27)) is rotated on the dimple in a pitch, roll and yaw direction. See Figure 9 of Stefansky.

Official notice is taken of the fact that resin coatings on piezoelectric elements and their substrates was notoriously old and well known at the time the invention was made.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the head arm assembly having a pair of substrates each having a pair of substrates having a piezoelectric element attached thereto with elastic hinges connecting the holding plate and pair of substrates shown in PCT/US97/07233 with a dimple for supporting the slider holding plate such that the slider holding plate is rotated on the dimple in a pitch, roll and yaw direction as taught by Stefansky '706. The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the head arm assembly having a pair of substrates each having a pair

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of substrates having a piezoelectric element attached thereto with elastic hinges connecting the holding plate and pair of substrates shown in PCT/US97/07233 with a dimple for supporting the slider holding plate such that the slider holding plate is rotated on the dimple in a pitch, roll and yaw direction as taught by Stefansky '706 since one of ordinary skill in the art recognized that the dimple holding plate arrangement ensured that the head was maintained in close proximity with the surface of the disc; see column 3, lines 41-46 of Stefansky.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the disk drive suspension of PCT/US97/07233 with the substrates and piezoelectric elements coated with resin. The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the disk drive suspension of PCT/US97/07233 with the substrates and piezoelectric elements coated with resin since one of ordinary skill in the art would have wanted to have protected the elements from stray electromagnetic signals that would have damaged the elements or the head signals.

5. Claims 36 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT/US97/07233 in view of Stefansky '706 as applied to claims 1, 29-35 and 37-42 above, and further in view of Crane et al (US 6,362,939).

The descriptions of PCT/US97/07233 and Stefansky '706 are in paragraph 4, *supra*.

Regarding claims 36 and 43, PCT/US97/07233 or Stefansky do not expressly show the substrate portions and elastic hinge portions having a conductor pattern transferring a signal to the head.

Crane et al disclose a microactuator suspension having a conductor pattern from the substrate portions and elastic hinge portions having a conductor pattern transferring a signal to the head; see Figures 2-3 and 26-27 of Crane et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have furnished the disk drive suspension having substrate portions and elastic hinge portions of PCT/US97/07233 with the substrate portions and elastic hinge portions having a conductor pattern transferring a signal to the head as taught by Crane et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to have furnished the disk drive suspension having substrate portions and elastic hinge portions of PCT/US97/07233 with the substrate portions and elastic hinge portions having a conductor pattern transferring a signal to the head as taught by Crane et al so that the signals between the head and the piezoelectric materials would have been coordinated for optimum performance of the suspension.

Response to Amendment

6. Applicant's arguments with respect to claims 1 and 29-43 have been considered but are moot in view of the new ground(s) of rejection.

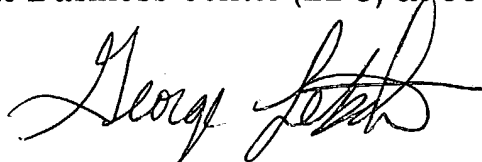
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George J. Letscher whose telephone number is 703-305-7912. The examiner can normally be reached on Conventional.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on 703-305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George J. Letscher
Primary Examiner
Art Unit 2653

GJL
11/15/04